

Name

Complete the following tables as background information:

Types of Reactant	
Saturated	Unsaturated
Aliphatics	Arenes
Electrophile	Nucleophile

Types of Reaction	
Addition:	
Substitution:	
Elimination:	
Addition/Elimination:	

Types of Bond Breaking	
Homolytic Fission	Heterolytic Fission

1. 10.3.1 Describe, using equations, the reactions of alkenes with hydrogen and halogens. (2)
 - a. Demonstrate the convention for depicting the movement of electrons:

 - b. Describe the illustrate the bonding in an alkene

 - c. Show, using equations and structural formulas, the addition of hydrogen to an alkene:

 - d. Show, using equations and structural formulas, the addition of a diatomic halogen to an alkene:

2. 10.3.2 Describe, using equations, the reactions of symmetrical alkenes with hydrogen halides and water. (2)
 - a. Show, using equations and structural formulas, the addition of a hydrogen halide to an alkene:

 - i. List and explain the order of reactivity of hydrogen halides with alkenes:

 - b. Show, using equations and structural formulas, the addition of water to an alkene:

3. 10.3.3 Distinguish between alkanes and alkenes using bromine water. (2)

How to distinguish between Alkanes and Alkenes	
With UV light	
With Halogen	
When Burned	

4. 10.3.4 Outline the polymerization of alkenes. (2)

a. Describe the building blocks for polymers

b. What is a repeating unit? Draw the repeating unit for polyethene, and polypropylene, and polyethylene

c. Illustrate how PVC, Poly Vinyl Chloride (Polychloroethene), is synthesized as a polymer. What is PVC used for?

5. 10.3.5 Outline the economic importance of the reactions of alkenes. (2)

	Materials	Catalyst	Product	Equation
Addition of H ₂				
Addition of H ₂ O				
Addition of HCl				
Addition of Cl ₂				
Polymerization				

Draw a flow chart for the reactions of alkenes: